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FOUR NEW CRININE FROGS FROM AUSTRALIA.

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THE recent arrival of a third shipment of material collected by the Harvard Australian Expedition of 1931-1932 brings the total number of amphibian specimens collected by the party to 545, representing 41 species of which several, being new, are described below.

Paratypes of both the new West Australian species will be deposited in the West Australian Museum; of both the Queensland forms in the Queensland Museum; in addition paratypes of three of the four species will be presented to the Australian Museum. In this connection I have taken the liberty of associating Mr. L. Glauert's name with a new *Crinia* from the vicinity of Perth and seize this opportunity of expressing the Harvard party's appreciation of the generous coöperation accorded them by the respective directors of the aforementioned museums.

A careful revisionary study of all the Australian amphibia in the Museum of Comparative Zoölogy reveals that all the genera and seventy-one of the eighty-five recognizable species or races are represented in the collections of the Museum of Comparative Zoölogy, so that the material available enables one to describe the new forms with some assurance of validity with the possible exception of the first.

*Mixophyes fasciolatus schevilli*, subsp. nov.

*Type*.—Museum of Comparative Zoölogy no. 18,150; an adult gravid female from Millaa Millaa, Atherton Tableland, Queensland, collected by Dr. P. J. Darlington, April 1-9, 1932.

*Paratypes*.—Museum of Comparative Zoölogy no. 18,480 from Lake Bar-

rine, Atherton Tableland, Queensland: no. 18,481 from Tick Camp, circa 4,000 feet, Bellenden Ker Range, Queensland, both collected in April, 1932, by Mr. W. E. Schevill, after whom the race is named. Also two others (M. C. Z. nos. 18,151-18,152) with the same data as the type, donated to the Queensland Museum and the Australian Museum, Sydney.

*Diagnosis.*—Differs from the typical form from New South Wales in the more extensive webbing of the feet involving all the toes, but best expressed specifically by the following key:

Three joints of the fourth toe free of web (exclusive of a possible narrow fringe); at least the terminal joint of the fifth toe free of web (New South Wales and southern Queensland) . . . . . *M. f. fasciolatus*

Two joints of the fourth toe free of web (exclusive of a possible narrow fringe); not even the terminal joint of the fifth toe free of web (Northern Queensland) . . . . . *M. f. schevilli*

*Coloration.*—Essentially similar to that of the typical form: apparently a tendency for the narrow transverse lines on the thighs to coalesce and form broad, hence fewer, bands.

*Measurements.*—Female. Snout to anus 83 mm., fore limb from axilla 51 mm., hind limb from anus 153 mm. Male. Snout to anus 61 mm., fore limb from axilla 43 mm., hind limb from anus 118 mm.

*Discussion.*—Fletcher (1892, Proc. Linn. Soc. N. S. W. 7, p. 18) and Andersson (1916, Svenska Vetensk.-Akad. Handl. Stockholm 52, no. 9, p. 18) have already invited attention to the extensive variation in webbing and limb length displayed by this frog. Attention has been focused largely on the disparity in limb length which, however, appears inconstant in the south: it will probably be found that the tibio-tarsal articulation of the adpressed hind limb of the northern race invariably extends far beyond the tip of the snout.

An area of intermediates occurs from the Richmond River in northern New South Wales, northwards to the Bunya Mountains of Southern Queensland, possibly further. If it is desired to apply a name to these one is available in (*Hyla*) *fenestrata* De Vis from the Tweed River on the New South Wales-Queensland border. As these intermediates essentially agree with the typical form as defined in the above key, with only a very slight tendency to vary in the direction of the northern race, I consider *fenestrata* a synonym of *M. fasciolatus fasciolatus* Günther.

***Crinia glauerti*, sp. nov.**

*Type*.—Museum of Comparative Zoölogy no. 18,420; an adult, gravid female from Mundaring Weir, about thirty miles northeast of Perth, West Australia, collected by Dr. P. J. Darlington, November 22, 1931.

*Paratypes*.—Museum of Comparative Zoölogy nos. 18,421-18,422 and two others donated to the West Australian and the Australian Museum; all with the same history as the type.

*Diagnosis*.—Closely related to *C. georgiana* (Duméril and Bibron) of which it might be said to be a miniature replica. It differs from *georgiana* in its smaller size, *viz.*, a breeding male with swollen arms and black throat measures 15.5 mm. and a gravid female 20.5 mm. as against male 32 mm., female 35 mm. in our series of *georgiana*. Vomerine teeth absent; skin on belly of males strongly granular, on females only slightly so; females marbled beneath.

*Description*.—Habit fairly stout. Head as broad as long; snout pointed; the distance from the nostril to the tip of the snout is equal to that from the nostril to the anterior border of the eye and about two-thirds the orbital diameter; canthus rostralis feebly marked, loreal region concave; interorbital region as broad as an upper eyelid; pupil distinctly horizontal; tongue pyriform, entire and free behind; vomerine teeth absent. Fingers moderate, increasing in length in the following order: first, second, fourth, fifth; subarticular tubercles strongly developed; a pair of metacarpal tubercles; toes slender, fringed, without web, increasing in length in the following order: first, second, fifth, third, fourth, the latter being twice as long as the fifth; both an inner and outer, strongly conical, metatarsal tubercle present; the tibio-tarsal articulation of the adpressed hind limb reaches the temple or hind corner of the eye in both sexes; the tarso-metatarsal articulation to the end of the snout.

Skin above (formalin to alcohol) moderately smooth but with numerous little warts and a pair of somewhat lyre-shaped glandular folds (inconspicuous in the type) on the anterior part of the back. Below areolate in the females, strongly granular in the males.

*Coloration*.—Above, uniformly black in both sexes though some specimens show a faint trace of an interorbital mark. Below, white heavily marbled with black in the females; throat black in the breeding male; immature specimens white below, sparsely spotted with black.

*Measurements*.—Female. Snout to anus 20.5 mm., fore limb from axilla 11.5 mm., hind limb from anus 30 mm. Male. Snout to anus 15.5 mm., fore limb from axilla 8.5 mm., hind limb from anus 24 mm.

***Crinia darlingtoni*, sp. nov.**

*Type*.—Museum of Comparative Zoölogy no. 18,390; an adult, gravid female, from between 3,000 and 4,000 feet in the Queensland National

Park, MacPherson Range, Queensland, collected by Dr. P. J. Darlington, March 10-16, 1932.

*Paratypes*.—Museum of Comparative Zoölogy nos. 18,391-18,392 and a third specimen donated to the Queensland Museum; all with the same history as the type.

*Diagnosis*.—Differs from all other members of the genus in the rudimentary nature of the first finger and the very minute first toe. In coloration some specimens agree closely with *C. acutirostris* Andersson. Usually a single (inner) metatarsal tubercle, in some specimens an almost invisible outer one may be distinguished.

*Description*.—Habit stout. Head as broad as long; snout obtusely rounded; the distance from the nostril to the tip of the snout is equal to that from the nostril to the anterior border of the eye and about three-quarters that of the orbital diameter; canthus rostralis and loreal region rounded; interorbital space flat, once and a half times as broad as the width of an upper eyelid; pupil horizontal; tympanum hidden; tongue elliptic, entire and free behind; mandible toothed; vomerine teeth absent. Fingers stout, their tips undilated, first very small, a third the length of the second which is shorter than the fourth; toes, except the first, well developed, free, without web, their tips slightly dilated, first toe extremely rudimentary, third very slightly longer than the fifth; subarticular tubercles not prominent; a small inner metatarsal tubercle and an almost invisible outer one; the tibio-tarsal articulation of the adpressed hind limb reaches to the shoulder in adults, nearly to the temple in a young toad; the tarso-metatarsal articulation reaches to the eye or just beyond.

Skin perfectly smooth above and below.

*Coloration* (in alcohol after formalin).—Very variable, no two specimens alike. The type is: above, pinkish brown, a broad black vertebral band of irregular outline, narrowing in the region of the axillæ, covers the snout, interorbital region, occupies more than half the width of the back, extending to the lumbar region where it forks and terminates; temples black; an obsolete black, lateral line is broken up into large blotches; fore arm black, upper arm paler; hind limb pinkish brown, more or less barred or blotched with dark brown. Below, white, the edges of the throat and a large area on the chest are heavily mottled with sepia brown; belly and underside of the thighs almost white, of tibia almost black; soles of feet parti-colored.

Other specimens have a well-defined, black, lateral line, a more or less triangular, interocular marking, an arrow-headed mark on the center of the back. Below, uniformly dusky.

*Measurements*.—Female. Snout to anus 19 mm., fore limb from axilla 10 mm., hind limb from anus 24.5 mm. The largest paratype (no. 18,391) measures 20 mm. from snout to anus.

**Pseudophryne brooksi**, sp. nov.

*Type*.—Museum of Comparative Zoölogy no. 13,025 from Manjimup, near Pemberton, West Australia, collected by Mr. Winthrop S. Brooks, February 7, 1927.

*Paratypes*.—Museum of Comparative Zoölogy nos. 13,027-13,031 and four others donated to the Australian Museum, Sydney, the West Australian Museum, Perth, and the British Museum, London; all with the same history as the type.

*Diagnosis*.—Differs from *P. australis* of West Australia, *P. bibroni*, *P. dendyi*, *P. nichollsi*, and *P. guentheri* in that the tip of the fourth toe of the adpressed hind limb reaches to the end of the snout or more usually well beyond it. In this respect it agrees with *P. albifrons*, *P. coriacea*, and *P. semimarmorata*. Of these the first two are from New South Wales or Queensland and so markedly different in coloring that there is no possibility of confusion.

*P. brooksi* is obviously intermediate between *semimarmorata* of New South Wales and Victoria and *guentheri* of West Australia. Its leg is a trifle shorter than that of the former, much longer than that of the latter. It may be immediately distinguished from our 121 examples of *semimarmorata* by the absence of pigmentation on the lower sides of the thighs and limbs which are uniformly white in *brooksi*, always marbled with darker in *semimarmorata*.

*Description*.—Habit moderate. Head as broad as long; snout rounded; the distance from the nostril to the tip of the snout is equal to that from the nostril to the anterior border of the eye and about two-thirds the orbital diameter (if a juvenile character perhaps equal to it in the adult); canthus rostralis feebly marked, loreal region slightly concave; interorbital space flat, broader than an upper eyelid; pupil distinctly horizontal; tongue elongate, entire and free behind; vomerine teeth absent. Fingers cylindrical, first very much shorter than the second (in all the specimens); subarticular tubercles strongly developed; a pair of metacarpal tubercles; toes cylindrical, without web, increasing in length in the following order: first, second, fifth, third, fourth; a strong, conical, inner metatarsal tubercle as large as the first toe, a smaller outer; the tibio-tarsal articulation of the adpressed hind limb reaches the axilla, the tarso-metatarsal articulation to the hinder edge of the orbit.

Skin above (in strong alcohol) finely granular with numerous warts and a pair of glandular ridges from behind the eyes converging and diverging as they approach the groin where they terminate. Below smooth, or minutely granular; a fold across the chest.

*Coloration* (in alcohol).—Above, dark brown variegated with lighter areas; usually a light transverse band across the forehead connecting the upper eyelids and sometimes fusing with a rudiment of a vertebral line above the snout; a pale cruciform mark upon the shoulders forks posteriorly

at midbody; a light line above the urostyle; hinder side of thighs pale brown. Below, throat and belly white variegated with large, brown spots; underside of thighs uniformly white or cream colored.

*Measurements.*—Snout to anus 21.5 mm., fore limb from axilla 11.5 mm., hind limb from anus 23 mm. All the series are about the same size and probably not quite adult.

*Museum of Comparative Zoölogy,  
Cambridge, Mass.*